ARDEC

AMC

ARMAMENT RESEARCH, DEVELOPMENT & ENGINEERING CENTER
PICATINNY, NJ

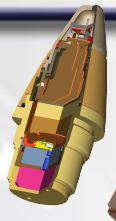
Supplying Advanced Armament Systems

Presented by:
Michael P. Devine
Technical Director

June 25, 2003

ARDEC Vision – Providing America Advanced Armaments for Peace and War

rtillery & Mortar Systems



Advanced Fuze Technologies

Special Operations Weapons & Demolitio

R&D

DEMI L

PROD

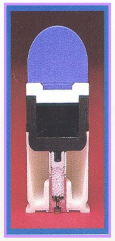
FIELD SUPPORT

Smart Munitions

Advanced Explosives & Warhead Developmen

Combat Vehicle Armaments & Fire Control

Logistics R&D



Non-Lethal Technologies

Future Small Arm

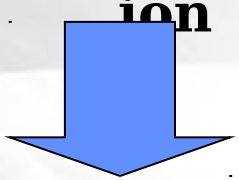
Core Capabilities

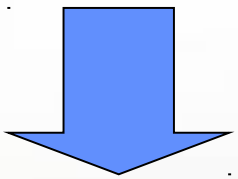
"We Integrate Complex Armament Technologies into Guns, Ammunition, and Fire Control Systems through Research, Development, Acquisition & Sustainment"

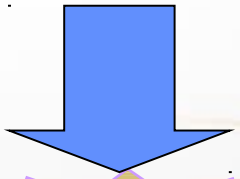
- Smart Munitions (Tank, Artillery, Mortars, Mines)
- Fuzes
- Fire Control
- Combat Vehicle Armament & Ammo
- Artillery Projectiles & Platforms
- Mortars
- Small Arms & Other Soldier Weapons
- Mines, Countermines & Demolitions
- Less-Than-Lethal Systems
- Ammunition Logistics

ARDEC Total Life Cycle Involvement

Determine Mission Need	Concept & Technology Development	System Development & Demonstration	Production & Deployment	Operations & Support







Transition Technology to PEO/PM

$100 mil
Annual Research

Type Classification

20 New Products
To the Field
(annually)

Materiel Release

$1.5 billion/year
Contracts Supported

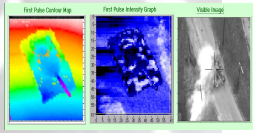
1386 Fielded Item Supported

ARDEC Provides Key Support to PEO/PM Life Cycle Responsib

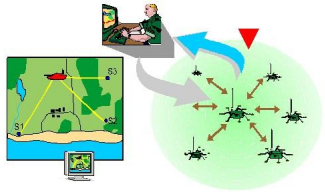
ARDEC Support to Transformation

- Technology/Products
- People
- Facilities
- Organization
- Partnering
- Homeland Defense

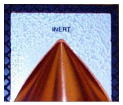
Major Lethality Technology Investments



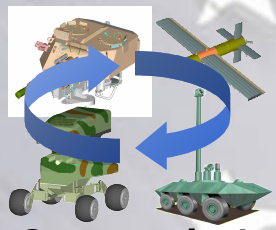
LADAR Sensors
F/ Smart Munitions



Acoustic/Seismic
Sensors



Multi-Mode
Warheads



Commander's
Decision Aids

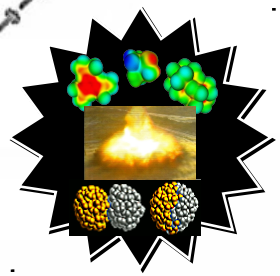
See First

Understand First

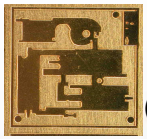
Objective Force

Finish Decisively

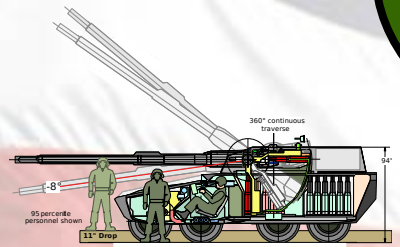
Act First



Novel/Nano-Structured
Energetics



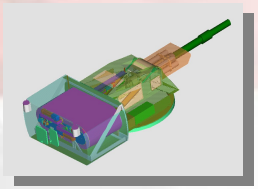
MEMS
S&A
(OICW)



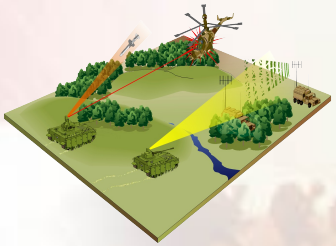
FCS 120mm
LOS/BLOS ATD

MEMS IMU

Mid-Range
Munition



Responsive
Accurate Mission
Module (RAMM)



Agile Target Effects

Objective Crew
Served Weapon

LtWt Machine
Gun & Ammo

PEOPLE

- **Over 360 New Hires since FY99**
- **Mentoring/Protégé Program**
  - Top-down Support: Steering Committee
  - On-line Data Base: Matching program to help establish best fit between Mentor & Protégé
  - Mentor/Protégé Training
  - Create SOPs
- **Hands on Prototyping**
- **Core Competency Study**
  - **Journeyman Level Proficiency: 22 Domain Areas**
  - **Strategic Facilities Master Plan**
  - **Prioritize & Tailor Future Workforce**

ARDEC 101

- **Provide employees with hands-on in house training in functional areas of ARDEC's mission**
- **Make available the necessary training to understand critical functions and core competencies**
- **Integrate modeling, simulation, manufacturing prototyping and testing into programs**
- **Transform the labor force into a world class design, prototyp , test**

Probabilistic Qualification of Components (Black Powder)

Lightweight Materials: (i.e. Aluminum Metal Matrix Composites)

Crystallization/ Control Science

Miniaturization of Fuzing

Processing Science Of Energetics

Laser Guided, Course Correction Shoulder Fired munition

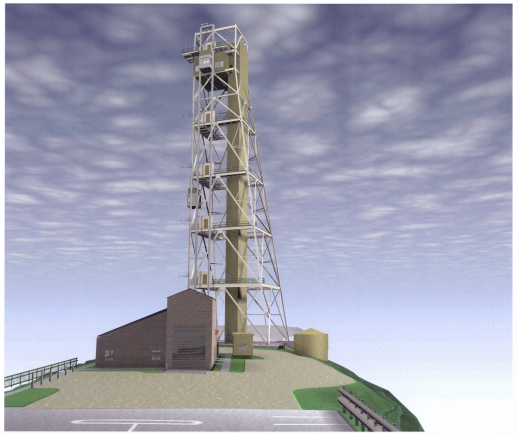
40 MM Tracer/Marker

Laser Guided 105 MM

Factory floor Connection to Enterprise

FACILITIES

- **Manufacturing Process Prototyping Capabilities**
  - Core Manufacturing Capability Coupled w/ Industrial Base Partners
- **Precision Armament Laboratory (Robert Reisman)**
  - Weather Effects on Electronic Sensor & Device Performance – 215 Ft Tower
- **Armament Engineering Software Center**
  - Develop, Test, Integrate & Qualify Weapon Sys Software
- **High Energy Explosive Loading Facility**
  - Consolidation of Explosive Operations Eliminating 26 Bldgs.
- **Armament Technology Facility**
  - Secure & Environmentally-Safe, Integrated Small Arms & Cannon Caliber Design and Evaluation Facility
- **Davidson Advanced Warhead Development Facility**
  - Test Shaped Charge & EFP Type Warheads
- **Leasing Initiatives – Bldg. 3305 (open June 03)**
  - Available for Contractor Co-location



ARDEC Reorganization

- **ARDEC BoD approved implementation of an ARDEC reorganization.**
  - Resulted from an internal Six Sigma study.
    - » Six Sigma study looked at our current organization/alternate constructs/ and assessed how well each satisfied or met organizational attributes believed by senior mgmt to characterize a highly efficient operation.
  - Current structure – consists of two centers – split predominately along the direct fire and indirect fire commodity lines –both with responsibilities from research to disposal of their product lines.
- New organization will be built around two major entities – a systems engineering/systems integration center and a technology generation laboratory.
  - Systems engineering will be responsible for current and future product lines.
  - Lab will provide the sciences and components required to field and sustain.

at will be emphasized: Streamlined Processes & Technology Acceleratio
l not be lost: Unmatched product safety, cost control, & Customer Satisf

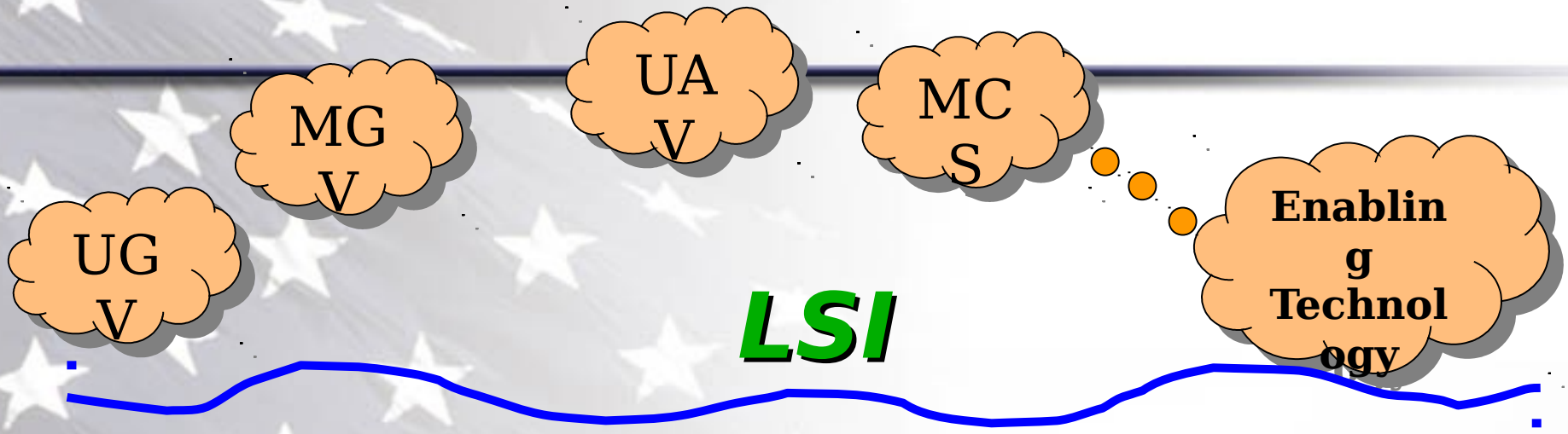
ARDEC Reorganization

- We are well underway with this restructuring initiative.
  - Goal is to have the new structure operational by October 1, 2003.
  - Chartered a Joint Project Team that is currently developing the detailed design.
    - » Team is composed of an ARDEC cross-organizational working group supported by Booz Allen Hamilton.
      - Booz Allen Hamilton brings with them organizational change management expertise & best practices of successfully restructured federal agencies &commercial institutions.
- A detailed design will be presented to the BoD on June 27, 2003.
- ***After the design is approved, we can share more of the details.***

Partnering

- CRADAs
- Site Transformation Concept
  - Enhanced Use Leasing Initiative
  - Hi Tech R&D Park
  - University Center
  - Ecological Research Station

Future Combat Systems



Technical Expertise
Specialized Facilities
Data, Software, IP
Robust Tech Base
Lethality Corporate Knowledge Base

CRADAs

- **Non FAR Agreement**
- **Flexible Terms**
- **Competition not required**
- **Exempt from FOIA (protect each party's proprietary rights)**

ARDEC

Test Agreements

- **Services of Gov't for testing of mate equipment, models computer software**
- **Fee for service**
- **Data rights protec**

Future Combat Systems

LSI

1st Tier Contractors

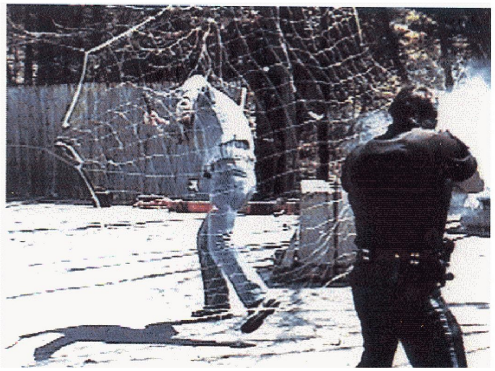
Subcontractors

MASTER AGREEMENT with ARDEC
(Intent to Cooperate and Partner)

Annex (1)	Annex (2)	Annex (3) . . .	Annex (N)
Specific scope deliverables & cost	Gov't to Industry tech transfer	Use of facilities & people	Collaborative Resea

Homeland Defense Initiatives

- **Information Assurance Networks**
- **Decision Aids (SERIS)**
- **Less than Lethal**
- **HLD Research & Training Center**
- **Partnerships: Gov't Agencies, Industry & Academe**



Governor McGreevey: Picatinny Arsenal

J Center for Homeland defense technology & Security Readiness

In Summary – ARDEC/Picatinny….

- ***The home of Army Lethality -***

  Our products assure decisive victory and bring our people home!

- ***We work with soldiers to develop new lethality systems, improve fielded weapons, and to quickly solve field problems***

- ***We provide the "teeth" in Army Weapons – over 90% of the Army's Lethality***

- ***Our products are "on-point" with the warfighter everyday***